



Minority University Research and Education Project (MUREP)

Institution: California State University, Monterey Bay

City/State: Seaside, CA

Award Name: MUREP Partnership Learning Annual Notification (MPLAN)

Award Number: N/A

Title: Crafting Biofuels via Molecular Insights/ ARMD: Strategic Thrust 1: Safe, Efficient Growth in Global Operations

PI: Dr. Arunkumar Sharma

PI Email: N/A

Award Fiscal Year: FY2024

Summary:

The proposal aims to harness computational chemistry to innovate sustainable biofuels for aviation, addressing the critical need for environmentally friendly and efficient alternatives to conventional jet fuels. Leveraging advanced simulations, including ReaxFF and quantum chemistry, our research focuses on understanding and optimizing the breakdown mechanisms of biomass-derived fuels. Through the novel application of ionic liquids in pyrolysis and exploration of electric fields, we seek to enhance biofuel production processes, aligning with ARMD's objectives for reducing aviation's environmental impact. This project promises to deliver biofuels that are not only high-performing but also stable under aviation conditions, contributing significantly to sustainable commercial high-speed transport.